

*REMARKS*

This amendment responds to the Office Action mailed September 14, 2007. In the office action the Examiner:

- rejected claims 25-30 and 46-48 under 35 U.S.C. 101 as being directed to non-statutory subject matter;
- rejected claims 1, 3-4, 6, 13, 15, 16, 18, 25, 27-28, 30, 38, 40, 42, 44, 46, and 48 under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US 2003/0225779) in view of Burrows (US 2004/0243569);
- rejected claims 5, 17 and 29 under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US 2003/0225779) in view of Burrows (US 2004/0243569) and further in view of Lewak et al. (US 6,826,566);
- rejected claims 37, 39, 41, 43, 45 and 47 under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US 2003/0225779) in view of Burrows (US 2004/0243569) and further in view of Beavin et al. (US 6,571,233); and
- rejected claims 37, 39, 41, 43, 45 and 47 under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US 2003/0225779) in view of Burrows (US 2004/0243569) and further in view of Rajasekaran et al. (US 7,020,782).

After entry of this amendment, the pending claims are: claims 1, 3-6, 13, 15-18, 25, 27-30, and 37-48 (27 claims, 3 of which are independent claims).

*Claim Amendments*

Independent Claim 25 has been amended to clarify that the "search engine for querying number range searches" is a patentable apparatus comprising "one or more servers, each having one or more processors and memory." These amendments are supported by at least Figure 1 and Figure 11, and the accompanying text in the specification.

*Rejection of Claims Under 35 U.S.C. § 101*

The Examiner has rejected Claims 25-30 and 46-48 as embodying an abstract idea and thus not being patentable subject matter. The amendments to independent Claim 25 resolve this issue. The Applicant respectfully requests that the Examiner withdraw the rejections to claims 25-30 and 46-48 under 35 U.S.C. 101.

Rejection of Claims Under 35 U.S.C. § 103(a)

The Examiner has rejected the claims in view of at least *Matsuda* and *Burrows*. The Applicant respectfully contends that these references, when combined, do not teach or suggest the claimed invention. As the Applicant argued in the response to the last office action, neither *Burrows* nor *Matsuda* teach generating:

an expression of numerical index terms based on the boundary number... wherein a respective numerical index term in the expression includes information indicative of an integral portion of a logarithm of the boundary number;  
(Claims 1, 13 and 25, emphasis added).

The Examiner concedes that “*Matsuda* does not explicitly teach the claimed limitation ‘wherein a respective numerical index term in the expression includes information indicative of an integral portion of a logarithm of the boundary number.’” (Office action dated 9/14/07, page 8, paragraph 5). Likewise, *Burrows* does not teach the above claimed limitation.

In particular, *Burrows* does not contain any teaching that suggests calculating “a logarithm of the boundary number.” The Examiner cites several paragraphs of *Burrows* (Column 25, line 10 through Column 26, line 13), which contain only two references to logarithms:

The number of levels needed to encode a range of N integers, with doubling of sizes, is a function of  $\log_2 N$ , where N is the number of possible range-based integer values to be encoded.

(*Burrows*, column 25, lines 37-40, emphasis added)

With  $\log_2$  based encoding at most  $2L-1$  metawords need to be searched if L levels are used for the expression of the range-based values.

(*Burrows*, column 26, lines 6-9, emphasis added)

The “ $\log_2$  based encoding” referred to by *Burrows* in Column 26 is clearly referring to the discussion in Column 25, where *Burrows* discusses the “number of levels needed to encode a range of N integers.” Furthermore, the discussion in Column 25 clearly indicates that *Burrows* is teaching the calculation of  $\log_2 N$  (i.e., the logarithm, base 2 of N), where “N is the number of possible range-based integer values to be encoded.” N is clearly not a boundary number, rather it is a measure of the size of the range. Thus, *Burrows* is not calculating “a logarithm of the boundary number,” and cannot teach the above cited limitation, present in all independent claims. For at least this reason, the claimed invention is

not anticipated by *Matsuda* and *Burrows* and the Applicant respectfully requests that the Examiner withdraw the rejections to all pending claims under 17 U.S.C. 130(a).

Furthermore, as described in greater detail the Applicant's response to the Office Action dated 5/18/07, neither *Burrows* nor *Matsuda* teaches the calculation of a logarithm as an intrinsic part of the search process. *Matsuda* does not discuss calculating logarithms, and *Burrows* discusses calculating logarithms solely for the purpose of extrinsic evaluation of the computational characteristics of "Range-Based Metaword" encoding. In contrast, the claimed invention teaches calculating logarithms as an intrinsic part of the search process (i.e., calculating the logarithm of a number either to represent a number in a document or to create a search query expression). For at least this reason, the claimed invention is not anticipated by *Matsuda* and *Burrows* and the Applicant respectfully requests that the Examiner withdraw the rejections to all pending claims under 17 U.S.C. 130(a).

In light of the above amendments and remarks, the Applicant respectfully requests that the Examiner reconsider this application with a view towards allowance. The Examiner is invited to call the undersigned attorney at (650) 843-4000, if a telephone call could help resolve any remaining items.

Respectfully submitted,

Date: \_\_\_\_\_

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